

Argument to the International Search Opinion
(Formal response to the written opinion of the
International Searching Authority)

TO: Examiner of the European Patent Office as an International
Preliminary Examining Authority

1. Identification of the International Application

PCT/JP2004/010276

2. Applicant

Name: TOYOTA JIDOSHA KABUSHIKI KAISHA

Address: 1, Toyota-cho, Toyota-shi, Aichi 471-8571 Japan

Country of nationality: JAPAN

Country of residence : JAPAN

3. Agent

Name: ITEC INTERNATIONAL PATENT FIRM

Name of signatory: IGAMI Hiroyuki

Capacity: Representative partner

Address: Pola-Nagoya Bldg., 9-26, Sakae 2-chome, Naka-ku.

Nagoya-shi, Aichi 460-0008 Japan

4. Argument

In the Written Opinion of the International Searching Authority, the Examiner has pointed out that all the constituent features of Claim 1 except for 'driving state varying mode changeover module' are disclosed in the cited reference D4 (EP0909675A). The Examiner has also pointed out that the problem of limiting overcharging in response to abruptly decreasing power demand is well known to a person skilled in the art and techniques relating solutions for the problem are disclosed in the references D1 (EP-A-1318285), D2 (EP0829386A) or D3 (US2002094908A1). In addition, the constituent feature of 'a driving state varying mode changeover module' in Claim 1 is considered to be disclosed in the cited references D1 and D5 (EP1245422A).

The feature of 'a driving state varying mode changeover module' in Claim 1 of the invention is 'in response to setting of an abruptly decreasing power demand by said power demand setting module, selecting a driving state varying mode to vary the driving state of said internal combustion engine, based on the charge-discharge electric power measured by said charge-discharge electric power measurement module and the input restriction set by said input restriction setting module'. We believe this feature of Claim 1 is different from the feature of 'I' in the Item V-2. of the Written Opinion, that is, 'the driving state varying mode changeover module selects a driving state varying mode to vary the driving state of said internal combustion engine **in response to setting of an abruptly decreasing power demand** by said power demand setting module'. The present invention discloses a technique of selecting a driving state varying mode according to how the driving state of the internal combustion engine varies based on a degree of a variation in the charge-discharge electric power of a secondary battery and an input restriction by the secondary battery. Specifically, the technique of the present invention

selects a driving state varying mode to rapidly vary the driving state of internal combustion engine or a driving state varying mode to gradually vary the driving state of internal combustion engine.

The cited reference D5 discloses a method of 'changing a compression torque of an internal combustion engine in response to said ISG (an integrated starter-generator) applied torque' in claim 23, and describes that 'a combination of said ISG applied torque and said engine compression torque decelerates said vehicle at a predetermined desired torque' in claim 24. The reference D5, however, does not teach or suggest a technique of selecting a driving state varying mode according to how the driving state of the internal combustion engine varies. The cited reference D1 discloses a technique of 'controlling the braking torque produced by the drive power source on the basis of the regenerative braking torque produced by the MG1 or MG2, and the amount of decompression of non-operating cylinders of the variable-cylinder engine 10' in paragraph [0077]. The reference D1, however, does not teach or suggest a technique of selecting a driving state varying mode according to how the driving state of the internal combustion engine varies.

In addition, any of the cited references D1 through D5 do not disclose a feature which corresponds to 'a driving state varying mode changeover module' of Claim 1 in the present invention, which includes a technique of selecting a driving state changing mode according to how the driving state of the internal combustion engine varies based on a degree of a variation in the charge-discharge electric power of a secondary battery and an input restriction of the secondary battery.

In view of above, we believe that the feature of Claim 1 in the invention is not disclosed in any of the references D1 through D5, and the present invention does not lack the patentability over the references D1 through D5. Claims 14 and 21 contain the

feature which corresponds to 'a driving state varying mode changeover module' of Claim 1 as the Examiner has pointed out in the Written Opinion and similar discussion above should be naturally applied to Claims 14 and 21. We thus believe that Claims 14 and 21 do not lack the patentability over the references D1 through D5.